Scenes From The Hackers' Conference

Version 2.0

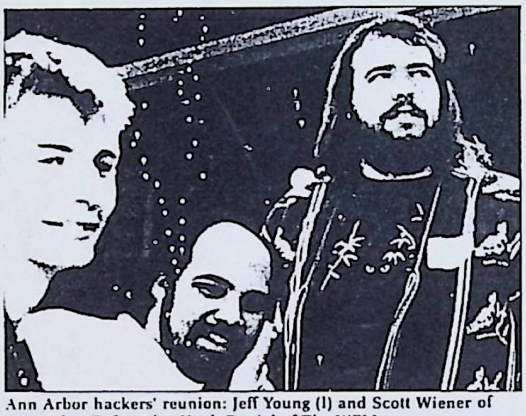


PHOTO: MARY EISENHART

Ann Arbor hackers' reunion: Jeff Young (l) and Scott Wiener of Ann Arbor Softworks Hugh Daniel of The WELL.

PHOTO: MATT HERRON

FORTH author Charles H. Moore (in hat) showing his latest creation, FORTH-on-a-chip.

Timothy Leary, addressing the assembled Hackers' Conference: "I have a new slogan. . ."

(expectant groans)

Leary: "It's TFYQA. Think For Yourself, Question Authority."

Voice from back of hall: "I question that!"

PHOTO: MATT HERRON

Dave Thornburg experiences The Joy Of Hacking.

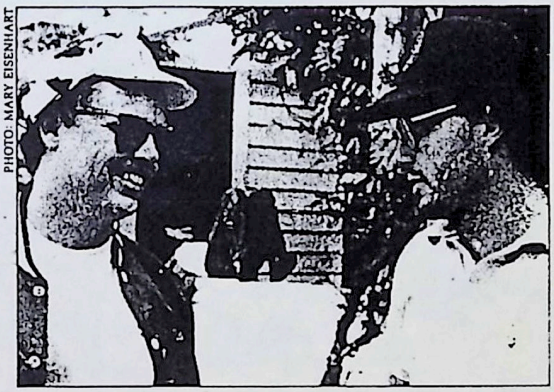


PHOTO: MARY EISENHART

David Bunnell of PC World (l), Buddy Diamond.

"I think hackers—dedicated, innovative, irreverent computer programmers—are the most interesting and effective body of intellectuals since the framers of the US Constitution."
—Stewart Brand

Spurred by this belief, Brand and some of his Whole Earth cohorts put together the first Hackers' Conference in 1984. The event was an unprecedented gathering of several generations of computer pioneers: the midnight skulkers of the Harvard and MIT computer labs, erstwhile phone phreaks, Homebrew Computer Club founders, latter-day software designers and hardware engineers. As recorded in Fabrice Florin's PBS documentary *Hackers*, the conference was part family reunion, part celebration of feats of ingenuity (otherwise known as "hacks"), and part attempt to come to terms with the ethical, social and practical problems created by the rise of the personal computer industry.

Almost everybody agreed that the event was too good an idea not to repeat. Glenn Tenney, L. Brett Glass, Bob Bickford and Tom Mandel used an online conference on The WELL to plan what was quickly dubbed Hackers 2.0, and after two months of hard work, they succeeded in organizing this year's version. Over the last weekend in October, 194 people, many veterans of the first conference, gathered at Camp Swig in Saratoga for more collective brainstorming, random access and glimpses of the future.

"Not everyone here is a hacker," says Tenney to the crowd assembled for Friday night's dinner.

All the writers who have finagled their way into this august gathering look at each other guiltily.

"We've invited a few Suits. . . ," Tenney continues apologetically.

Boos, catcalls. The writers heave a sigh of relief. The Pacific Bell executive at our table takes it well.

The Suits, by and large, are here for Saturday afternoon's discussion entitled "Us Vs. Them, or Dealing With Marketing And Management"—a session which is rapidly rechristened "Technoids Vs. Marketroids."

In general, the loosely-organized sessions reflect an industry and a hackerdom two years older and considerably more complex than their 1984 counterparts. Whereas Hackers 1.0 leaned towards philosophical discussions of matters like The Hacker Ethic Vs. Copy Protection (in which Hacker A would maintain that his source code was his soul and Hacker B would counter that being denied access to source code was like buying a house with a locked room to which only the seller had the key), Hackers 2.0 finds itself dealing with a computer industry which now extends far beyond the technical community to a user base less interested in

Computer magazine editor meets Famous Consciousness Hacker.

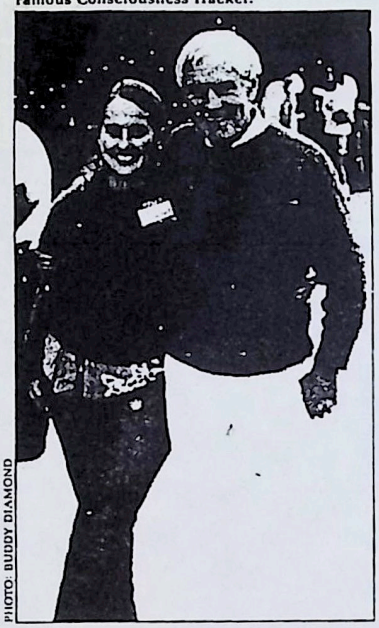


PHOTO: BUDDY DIAMOND

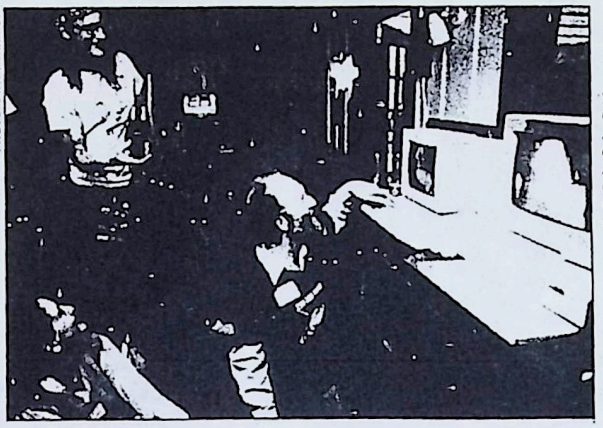


PHOTO: MATT HERRON

Laura Creighton, John Gilmore (standing) and Arthur Abraham experiment with Abraham's Live! video digitizer, simultaneously running on an Amiga and an Apple IIGS.

Jerry Pournelle defends SDI.

PHOTO: MATT HERRON

Meeting of minds: WELL-dwellers Howard Rheingold and Matthew McClure.

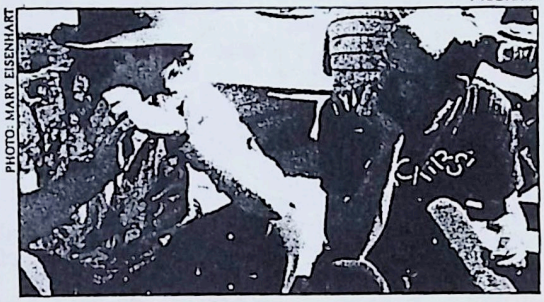


PHOTO: MARY EISENHART

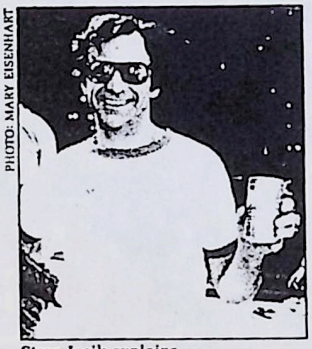


PHOTO: MARY EISENHART

Steve Jasik explains why he wishes he had Jolt cola when he was writing MacNosy.

PHOTO: MARY EISENHART

Todd Rundgren (striped sweater) talks shop.

access to source than in getting a job done. Discussions like Technoids Vs. Marketroids and "User Interface/Human Factors" try to come to terms with the concerns of a relatively mature and broad-based industry.

For many people, though, the true business of the conference happens at the impromptu gatherings, the all-night conversations, the multi-player Maze Wars marathon, the idea-swapping, unexpected revelations and demonstrations of everything from international teleconferencing to computer animation. The event is designed to accommodate the participants' well-known inclinations, from the restocked-around-the-clock table of junk food and pallet of Jolt cola ("All the sugar and twice the caffeine") to a houseful of computers and equipment.

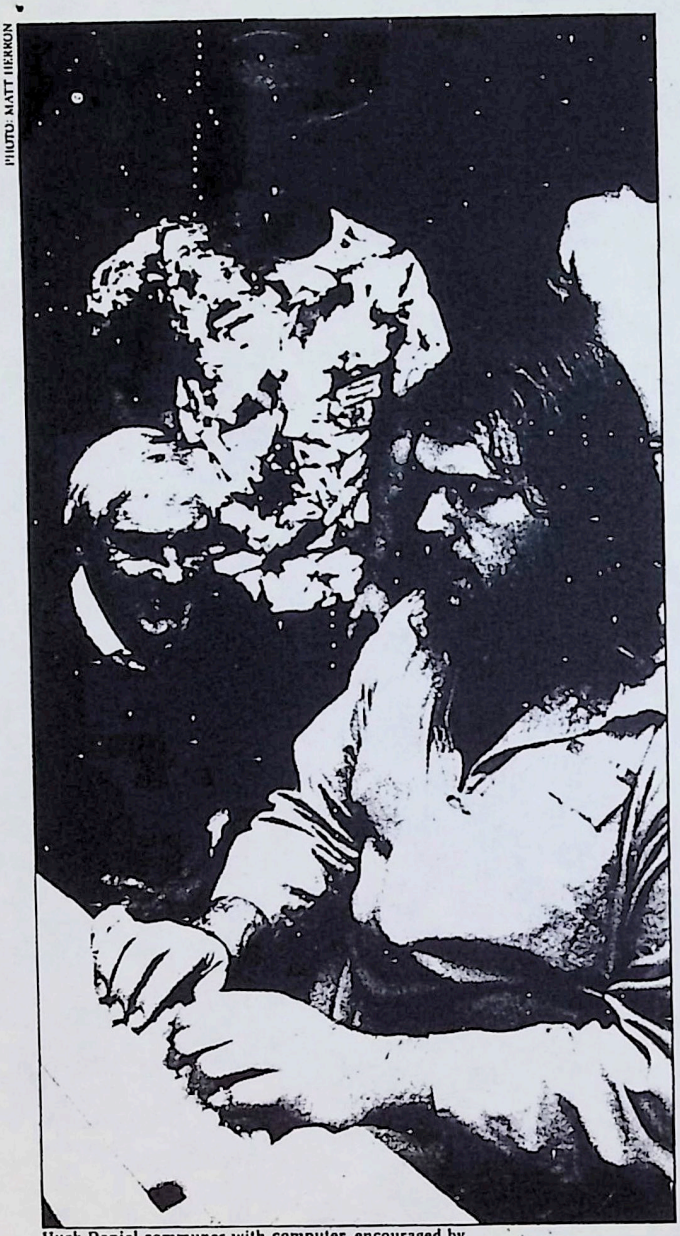
Company presidents and impoverished visionaries abound at the conference, but everybody seems to have checked his corporate self at the gate. While ideas are being vigorously argued and specific products praised or castigated, commercial hype is conspicuously absent.

In a crowd that includes engineers, programmers, musicians, writers, business types, and industry analysts, there are nonetheless certain elements of cultural homogeneity. Somebody points out that among the Macs, Amigas, STs, Apples and occasional clones in the equipment rooms, there's not a single machine made by IBM. Also, everyone seems to have read Douglas Adams. The biggest laugh of the weekend goes to a JPL computer-animated educational film called *The Mechanical Universe*, in which various principles of physics are elucidated and a Victorian meat-grinderish contraption called the Differential Engine appears periodically, transforming messy equations into clear statements. In its alternate identity as the Integration Engine, the DE is given the task of figuring the volume of an irregular solid, in this case a teapot. It thinks about it awhile, and produces the answer 42. Everybody howls.

It's reported that one of the marathon bunkhouse discussions comes to a screeching halt around 3 am as techno-musician and personal computer user Todd Rundgren inquires of a certain mainframe wizard just why it's desirable to have those large, clunky, complicated machines anyway. The mainframer is said to have fixed Rundgren with a withering stare and replied, "Because it gives me a warm fuzzy feeling..."

A somewhat better answer is provided at one of the sessions by a veteran who recalls a gargantuan, power-hungry, expensive and slow-working machine of years past which, incidentally, played music. "Now," he says, "you can go down to your music store and buy an efficient, portable, cheap version of the same thing. It's called a Yamaha

PHOTO: MATT HERRON



Hugh Daniel communes with computer, encouraged by Timothy Leary and Howard Rheingold.

DX-7."

Big vs. Little is an ongoing debate here. On the one hand, populists of various stripes see the microcomputer as an instrument of democracy. Jim Warren, founder of enterprises from *Doctor Dobb's Journal* to the Computer Faire, proclaims his mission of getting the power of computing out of the exclusive possession of corporate and government monoliths and "into the hands of the people where it belongs." Jef Raskin, pioneering Macintosh designer and advocate of the Maytag theory of computing, stresses the importance of accessibility and ease of use. Dave Hughes, operator of the Chariot teleconferencing system in Colorado Springs and proponent of the electronic village, reports gleefully on computers as a great equalizer—on Chariot, he says, teenagers and truck drivers routinely argue foreign policy with Air Force Academy generals.

On the other hand, several people now working on large government or corporate systems point out that discoveries made in that arena have a way of eventually paying off in improved micro technology. Others express impatience with the wheel-reinventing and general inefficiency caused by thousands of decentralized self-contained systems duplicating the same information and not talking to each other. The debate remains as unresolved at the conference as it does in life.

In the computer world, yesterday's crackpot scheme is today's revolutionary product. While there's no lack of strong opinions and strong egos, everybody here tends to listen. There's no telling where a particular idea might lead, and there are some controversial ones going around.

Jerry Pournelle, citing as his credentials the fact that "I write the President's speeches on SDI," delivers an impassioned speech in defense of Star Wars. Not many of the group seem to share this point of view; nonetheless, everybody listens.

Buddy Diamond, leading voice of the Software Publishers' Association and unleasher of *NFL Challenge* on an unsuspecting world, is sporting a Grateful Dead baseball hat and distributing pamphlets of closely-reasoned Constitutional theory, fortified with frequent quotes from the Founding Fathers.

Ted Nelson expounds on Xanadu, an elaborate system of information access in which everything is essentially connected to everything else by a non-linear scheme known as hypertext. Variously characterized as something between the Holy Grail and the most outrageous vaporware in history, the venerable Xanadu project is taking on new life as the technology to drive it begins to seem attainable. Nelson holds a post-midnight forum, arguing the viability of the project and inviting hardy and interested techies to become alpha testers.

One group session invites the participants to fantasize about the state of computer technology ten years hence. Possibilities outrageous, practical, or hilarious are raised with enthusiasm. Finally, one anonymous soul caps the discussion with what'll probably be the truest statement of the weekend: "Whatever the greatest technological development is ten years from now, it won't be predicted by anybody in this room tonight."

The senior executive from Pac Bell and I are sitting around waiting for Nelson's presentation. We're talking about medieval history, about which he seems to know a great deal.

"I see the personal computer as having much the same impact as the invention of the longbow," he says.

How so? I reply.

"In the Middle Ages, the knight in armor was king," he explains. "You couldn't kill him. Once the longbow was invented, though, everything changed. Armed with a longbow, the common man could drive an arrow straight through a knight in full armor.

"All of a sudden, everybody was equal..."

—*Mary Eisenhart*

"Hacker" Defined

By Bob Bickford

(Thanks in large part to the entertainment media, the term "hacker," originally an honorable term, has taken on comic-sinister overtones. Most people, when asked to define the word, will describe some variant of the maniacal horn-rimmed geek with a lust for mayhem on other people's systems.

Bob Bickford is a hacker, and proud of it. He co-hosts the Hackers conference on The WELL and is a member of the Homebrew Computer Club. He thinks hackers don't deserve this negative reputation, and wants to set the record straight.

—eds.)

There's an ongoing argument, even among hackers themselves, as to who is or is not a hacker. Compounding the problem is the image that the popular press has brought to the word; while the people held up as examples of "hackers" are not typical, they must be included in any reasonable definition of the word, if for no other reason than that they have achieved some truly clever hacks.

Hackers, I realized at the recent Hackers 2.0 conference, are people who enjoy hacking, for its own sake. We value the process as much as, or more than, any results which may come of it. Having concluded some time ago that hacking was defined as circumventing limitations, I arrived at this definition:

Hacker: Any person who derives joy from discovering ways to circumvent limitations.

"Discovering" does not necessarily imply "using." Much of the joy is in simply acquiring the knowledge, skills, and/or tools. I choose the word "circumvent" because, although tackling limitations head-on

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is far from unknown in the hacker world, more enjoyment seems to come from going around them. It seems more clever, or more "elegant" in the engineering sense. Certainly a hack is more enjoyable, and more respected, when it is particularly clever or elegant.

In his book *Hackers: Heroes Of The Computer Revolution*, author Steven Levy proposes the view that some hacking is done specifically to subvert authority. While this may be

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true, I don't believe that it's a defining characteristic of the hacker personality. While hackers often have anti-authoritarian tendencies, it's probably because hackers despise limitations, and especially artificial limitations.

The phrase "hacking the system" illustrates this definition rather nicely. We are all familiar with the idiocies and intricacies of modern society and government. We often find ourselves applauding someone who has found a way to accomplish something useful in spite of these all-too-familiar limitations. If what the person has done happens to be wrong, we may not applaud, but we still feel some admiration for their cleverness. This is the hacker instinct in us.

Let me illustrate with some examples. Consider the person working on some project who is stymied when he requires intricate knowledge of a computer's operating system, knowledge which the manufacturer has chosen to keep a deep, dark secret. This is a limitation, which the hacker instinct will endeavour to find a way around. Various tools may be brought into play, hours may be spent unraveling those intricacies, and in the process of all that hard work the hacker will have a lot of fun. Whether or not all of the effort is eventually used for some "worthwhile" purpose is largely irrelevant; hackers are just as likely to undertake such a project on a whim as for any particular reason.

More to the point, perhaps, is the situation where the limitation exists

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for a good reason, but one which is unrelated to the hacker's goal. The inherent speed, or other characteristics, of a video display may present such a limitation. In such situations, hackers have been known to develop software which even the machine's designers can't understand.

And then, of course, there is the hacker of the popular media image. Properly referred to as a "cracker," or at least as a "negative hacker," this is the person whose interests and goals run up against limitations such as security systems on large computers. The joy they derive from bypassing these limitations qualifies them as hackers, even if their activities are somewhat unacceptable to the rest of us. Also, in keeping with common practice, they may not even make use of the information they develop or uncover; the joy lies in the acquisition of knowledge.

For example, in the PBS documentary *Hackers*, John Draper (aka Captain Crunch) explains his forays into the phone system with the comment that he was "...checking things out, seeing how they're working." While this usually generates a chuckle from the audience, there is nonetheless a certain amount of truth in it. In this case, the limitation was simply a lack of knowledge about the workings of the phone system. Draper was

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interested in learning. He has told me that he still gets occasional calls from people who are discovering the sheer joy of exploring the vast universe of the telephone system.

Circumventing limitations—in other words, hacking—was the subject of much talk at the recent Hackers 2.0 conference. Erik Fair repeated his well-known (and valid) contention that micro users must learn to think big. Erik is concerned that systems, such as networks, designed by micro hackers will have built-in limits that prevent them from being useful on a large scale. Others expressed similar concerns, in areas such as copy protection (almost universally denounced and ridiculed) and user interfaces (the place where limits get noticed). In every such discussion, I saw brilliant minds dedicated to discovering ways to get around limits: bandwidth, speed, too much data, too little data, and even human-created limits such as companies whose policies regarding software prevent more sales than anything else. In other words, I saw the hacker personality in action.

While the word is almost exclusively associated with the computer world, hacking is in the personality rather than the field of interest. I have met many people I consider hackers, even when they have never come near a computer. Hackers tend to crop up almost exclusively in technological fields of endeavour, almost certainly because it is in these fields that limitations can be identified rationally. However, if you look in other areas for people who are circumventing limitations, you'll probably find one or two enjoying the process for its own sake. These people, regardless of occupation, are the hackers. □